

[10191/2197]

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s) : Alfred GOERLACH et al.  
Serial No. : 10/030,309  
Filed : May 13, 2002  
For : DIODE HAVING A METAL SEMICONDUCTOR  
CONTACT, AND METHOD FOR THE MANUFACTURE  
THEREOF  
Examiner : Dana Farahani  
Art Unit : 2814  
Confirmation No. : 8784

Mail Stop Non-Fee Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on:

Date: 7/29/03 Reg. No. 92,490

Signature: *Richard L. Mayer*

**AMENDMENT**

S I R:

In response to the Office Action of June 13, 2003, kindly amend the above-captioned application as follows:

**IN THE CLAIMS:**

Please cancel, without prejudice, claims 17 and 22 to 32.

Please amend claims 18 o 21, without prejudice, as follows:

18. (Amended) A diode, comprising:

a semiconductor substrate arranged between a first metallic electrode and a second metallic electrode, the substrate highly doped in a first zone to form an ohmic transition to the first electrode and weakly doped in a second zone to form a rectifying transition to the second electrode;

wherein the first zone and the second zone are separated by a third zone of the semiconductor substrate doped more weakly than the second zone, the first zone, the second zone and the third zone having a same conductivity type, the second zone enclosed between the second electrode and the third zone; and

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wherein a breakdown voltage between the second electrode and the third zone is at least three times as great as a breakdown voltage between the second electrode and the second zone.

19. (Amended) A diode, comprising:

a semiconductor substrate arranged between a first metallic electrode and a second metallic electrode, the substrate highly doped in a first zone to form an ohmic transition to the first electrode and weakly doped in a second zone to form a rectifying transition to the second electrode;

wherein the first zone and the second zone are separated by a third zone of the semiconductor substrate doped more weakly than the second zone, the first zone, the second zone and the third zone having a same conductivity type, the second zone enclosed between the second electrode and the third zone; and

wherein the second zone is raised over a surface of the third zone, and the second electrode covers the second zone in a hat shape that includes a circumferential rim that touches the third zone.

20. (Amended) A diode, comprising:

a semiconductor substrate arranged between a first metallic electrode and a second metallic electrode, the substrate highly doped in a first zone to form an ohmic transition to the first electrode and weakly doped in a second zone to form a rectifying transition to the second electrode;

wherein the first zone and the second zone are separated by a third zone of the semiconductor substrate doped more weakly than the second zone, the first zone, the second zone and the third zone having a same conductivity type, the second zone enclosed between the second electrode and the third zone; and

wherein the second zone is planar and island-type on a surface of the third zone, and the second electrode is flat and touches the third zone in an edge region.

21. (Amended) A diode, comprising:

a semiconductor substrate arranged between a first metallic electrode and a second metallic electrode, the substrate highly doped in a first zone to form an ohmic transition to the first electrode and weakly doped in a second zone to form a rectifying transition to the second electrode, the first zone and the second zone